EUCALYPTUS SILVESTRIS, A NEW SPECIES OF *EUCALYPTUS* (MYRTACEAE) FOR VICTORIA AND SOUTH AUSTRALIA AND NOTES ON VICTORIAN OCCURRENCES OF *EUCALYPTUS ODORATA*

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ABSTRACT

Rule, K. *Eucalyptus silvestris*, a new species of *Eucalyptus* (Myrtaceae) for Victoria and South Australia and notes on Victorian occurrences of *Eucalyptus odorata*. **Muelleria 8(2): 193–199 (1994).** — *Eucalyptus silvestris* K.Rule is described and its distribution, affinities and conservation status are discussed. As well, comparisons with *E. odorata* Behr, and other mallee-box species are made and clarifications about several Victorian collections previously referred to as *E. odorata* are given.

INTRODUCTION

The original description of *Eucalyptus odorata* Behr was made in 1847 following a collection from near Nuriootpa in the Barossa Valley of South Australia. Locally referred to as Peppermint Box, its features included mallee or small tree habit, dark grey box-like bark, dull blue-green or green adult foliage, somewhat glaucous juvenile leaves of varying widths and slightly angular buds and fruits. Since then numerous other collections have been attributed to *E. odorata* from South Australia (the Eyre Peninsula, Kangaroo Island, the Fleurieu Peninsula, the Northern and Southern Flinders Ranges, and the Upper South-east) and Victoria (the Wimmera and North-central regions).

The taxonomic history of *E. odorata* has been highlighted by the naming of several taxa whose integrities could not be sustained. After Behr's original description, *E. cajuputea* Muell. *ex* Miq. (1851) and *E. fruticitorum* Muell. *ex* Miq. (1856) were named, both of which are now regarded as synonyms of *E. odorata*. Blakeley's 1934 treatment of the species produced a number of varieties which also have been unsustainable. In the opinion of Pryor and Johnson (1971) the var. *angustifolia* is the one exception.

The erection of *Eucalyptus wimmerensis* K.Rule (1990), marked the beginning of the dissection of the mallee-boxes, particularly *E. odorata*. In the course of that study,it became apparent to both this author and Mr M.I.H. Brooker of Canberra that populations of the Upper South-east of South Australia in the vicinity of Bordertown and of adjacent areas of the Victorian Wimmera were inconsistent with the typical form.

TAXONOMY

Eucalyptus silvestris K.Rule *sp. nov.*

> *Eucalyptus odorata* affinis a qua alabastris fructibusque parvioribus, foliis juvenilibus latioribus et foliis adultis lamprophyllis. A *E. wimmerensi* cortice aspero habitu arboreo et foliis juvenilibus adultisque latioribus differt.

HOLOTYPUS: Victoria, 6.8 km south of Yanac by road towards Nhill, 36°10′S, 141°27′E, 23 Apr. 1990, *K.Rule 9016* (MEL).

Tall, robust mallees or small spreading trees to 12 m. *Bark* grey, fibrous, irregularly chunky to major branches, smooth grey-brown above. *Seedling leaves* opposite for 3 or 4 pairs, narrowly elliptical or narrowly ovate, shortly petiolate, slightly discolorous dull, blue-green. *Juvenile leaves* narrowly lanceolate, lanceo-

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late or ovate-lanceolate, dull, blue-green or green, concolorous, petiolate, alternate, semi-erect, glandular, acute, 5–8 × 1.4–3 cm; intramarginal and lateral veins conspicuous, 2–3 mm from margin; bases tapered; petioles slightly flattened, 0.6–1.2 cm long. *Intermediate leaves* similar to the juvenile leaves, becoming sublustrous and slightly broader. *Adult leaves* lanceolate, olive-green or green, lustrous, glandular, acute, uncinate, semi-erect in relation to axis, 6–10 × 1.2–2.2 cm; petioles slightly flattened to 1.5 cm long; intra-marginal veins conspicuous, to 2 mm from margins. *Branchlets* angled. *Inflorescences* simple, axilliary, along the main axis or more often in short sometimes leafy, terminal branchlets; peduncles slightly angled, to 1.0 cm long floral buds (5) 7 (9), fusiform or clavate, distinctly pedicellate, unscarred, to 0.5 × 0.4 cm; sepaline and petaline opercula adnate, conical, shorter than hypanthium; hypanthium tapered, slightly angled; pedicels to 0.6 cm long; filaments irregularly flexed, all fertile, white; anthers adnate, basifixed, globoid, dehiscing by subterminal slits; style to 0.4 cm. long, with a disc-like stigma. *Fruits* obconical, subcylindrical or cupular, sometimes lightly ribbed or angled, smooth or lightly rugulose when dry, distinctly pedicellate, often burnished, to 0.4–0.5 × 0.3–0.4 cm.; pedicels slightly angled, as long as fruit; disc descending; locules (3) 4 (5). *Fertile seeds* dark brown, ovoid to slightly cuboid, with dorsal surface shallowly reticulate and hilum ventral. (Fig. 1)

Flowering Period

Autumn.

Specimens Examined

Victoria — 3 miles [5 km] north-east of Kaniva, 10 Sep. 1949, *J.H.Willis* (MEL 1526769); 6.9 km South of highway 8 on Edenhope Road, 8 Mar. 1986, *K.Hill 1678, L.A.S.Johnson and K.Wilson*, (MEL); 1.3 km east of the Serviceton turn-off on the Western Hwy, 16 May 1986, *K.Rule* (MEL); 14.7 km west of Kaniva on the Western Hwy, 16 May 1986, *K.Rule* (MEL).

South Australia — 3.7 km west of Wolesley turn-off on highway west of Bordertown, 6 Sep. 1989, *M.I.H.Brooker 10284*, (MEL 118428); 1.4 km north of Bangham turn-off on Frances-Bordertown Road, 29 Sep. 1992, *K.Rule 9265* (MEL); 7.5 km south of Bordertown towards Frances by road, 29 Sep. 1992, *K.Rule 9266* (MEL); 2.6 km south of Bordertown by road, 29 Sep. 1992, *K. Rule 9267* (MEL).

Distribution

Eucalyptus silvestris occurs sporadically on well-drained loams on rises in undulating farming country. Its known distribution in South Australia is in the vicinity of Bordertown and in Victoria between Serviceton and Yanac. (Fig. 2)

Etymology

The epithet of the new species is derived from Latin and refers to its woodland habitat.

Conservation Status

Within Victoria, nowhere is the new species plentiful, however, in South Australia, it is relatively abundant on roadside verges and farms between Bordertown and Bangham. The bulk of the Victorian populations are close to the border in the vicinity of Serviceton but other pockets have been located to the east near Kaniva and Yanac. In terms of its total distribution, *E. silvestris* is a species with a relatively restricted distribution whose populations are depleted to the extent that it should be considered rare. In accordance with the criteria prescribed by Briggs and Leigh (1989), it is suggested that the code 2RCa be designated for the species.

Associated Species

Eucalyptus silvestris grows in pure stands but *E. microcarpa* Maiden, *E. largiflorens* Muell. and two forms of *E. leucoxylon* (ssp. *stephaniae* K.Rule and an unnamed, large-fruited, waxy subspecies) may be found in the vicinity. The pre-

Fig. 1. *Eucalyptus silvestris* a — branchlet with flowers and mature buds ×1. b — mature fruits ×1. c — seedling leaves ×0.75.

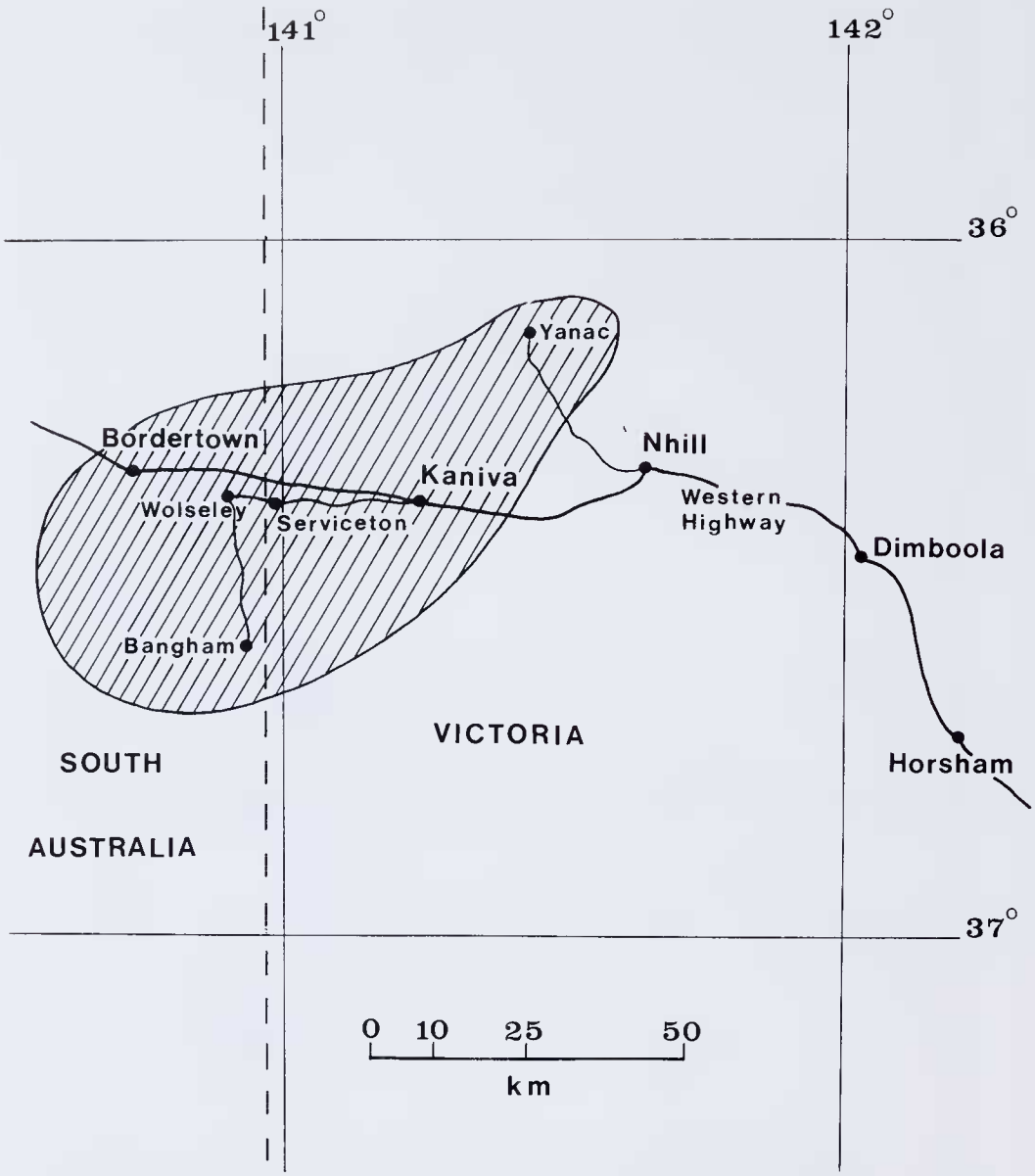

Fig. 2. Distribution of *Eucalyptus silvestris*.

ferred habitat of the new species segregates it from several mallee species also occurring in the area. Seedling trials have confirmed the existence of hybrids with *E. largiflorens* at two sites near Bordertown.

Discussion

Several critical features clearly place *E. silvestris* in the Series Subbuxeales Blakely. Included are its simple, axillary inflorescences which occur along the main axis or on often leafy terminal branchlets, its non-scarred bud with adnate sepaline and petaline opercula, its basifixed, adnate anthers and its small, dark brown, shallowly reticulate seeds. The dull, bluish juvenile leaves with their observable minor veins and abundant oil glands suggest that *E. silvestris* is closely related to *E. odorata*, *E. wimmerensis* (Table 1) and *E. polybractea*. Collectively,

these taxa constitute a natural group which is best accommodated by the informal Superspecies odorata of Pryor and Johnson (1971).

Although *E. silvestris* resembles *E. odorata*, it is different in having smaller buds and fruits and conspicuously lustrous instead of dull adult leaves. As well, its juvenile leaves generally are broader and have longer petioles. The new species has an autumn flowering period whereas *E. odorata* usually flowers during winter.

The new species occurs in the same region as *E. wimmerensis*, however the two are readily separable in the field in habitat and both juvenile and adult morphologies. Whereas *E. silvestris* occurs on well, drained loams in terrain valued for farming, *E. wimmerensis* prefers infertile ridges or sandy rises. *E. wimmerensis* also is different in being a small mallee with box bark limited to the base or lower trunk. Other differences in adult morphology include *E. silvestris* having more lustrous and generally larger adult leaves. The juvenile leaves of the two contrast well, with those of *E. wimmerensis* being smaller and having shorter petioles and a less conspicuous venation pattern (Table 1).

The erection of *E. silvestris* eliminates *E. odorata* from Victoria and adjacent areas of South Australia and sets its eastern limits as the Tailem Bend area. At the same time, this study provides a clarification regarding Peppermint Box 'look-a-likes' in Victoria. Further, of equal importance, it has responded to an expressed conservationist need, not only to provide a taxonomic treatment for the new species, but to identify and survey its remnant populations.

Key to species in the informal Superspecies *odorata*

1 Adult leaves dull
  2 Juvenile leaves waxy ..... **E. polybractea**
  2: Juvenile leaves non-waxy ..... **E. odorata**

1: Adult leaves sub-lustrous or lustrous
  3 Stems box-baked ..... **E. silvestris**
  3: Box bark basal or confined to lower stem ..... **E. wimmerensis**

NOTES ON THE OCCURRENCE OF *E. ODORATA* IN VICTORIA

Blakely (1934) described *E. odorata* as occurring in North-central Victoria and collections held in MEL from the St. Arnaud, Avoca, Inglewood and Bendigo areas have been attributed to the species. These have been persued in the field and found to be neither *E. odorata* nor *E. silvestris*. Two specimens, one from to the south-west of St. Arnaud and the other from Avoca, previously diagnosed as *E. odorata*, appear to have given rise to beliefs regarding the presence of that species in North-central Victoria. Field studies and seedling trials have shown these to be derived from a form of *E. microcarpa* with relatively narrow, somewhat glossy leaves which is one of several forms of Grey Box in the state.

Mallee-box populations to the north of St. Arnaud also have been referred to as *E. odorata*. They too are considered to be neither that species nor *E. silvestris* but a rough-barked, broad-leaved form of *E. polybractea*.

In the Inglewood area there are other narrow-leaved populations of *E. microcarpa* that abut stands of *E. polybractea* on the fringes of mallee communities. Obvious hybrids between the two, which could be mistaken for *E. odorata*, have been observed in the field. These populations of *E. microcarpa*, in part, appear to account for Blakely's references to Victorian populations of the now defunct *E. woolsiana* R.T.Baker.

A collection from the Bendigo Whipstick held in MEL under *E. odorata*, which has not been found in the field, even after three searches, is believed to be an aberrant, broad-leaved form of *E. viridis*.

A single mallee fitting the description of the presumed hybrid, *E. blackburniana* Blakely (considered by Blakely as a relative of *E. odorata*) has been

Table 1. Comparison of *E. silvestris* and related mallee-boxes

Characters	E. silvestris	E. odorata	E. wimmerensis
JUVENILE LEAVES			
Colour	Green to blue-green, dull	Grey-green to blue-green, dull	Blue-green, dull
Surface wax	Absent	Absent or present	Absent
Size (5–15 node)	To 8 × 3 cm	To 9 × 2.2 cm	To 6.5 × 1.6 cm
Secondary venation	Conspicuous	Conspicuous	Visible
Petiole length	0.6–1.2 cm	0.2–1.0 cm	0.2–0.8 cm
ADULT LEAVES			
Colour (canopy)	Olive-green or green, lustrous	Grey-green or olive-green, dull	Olive-green, less often blue-green, sub-lustrous
Surface wax (inc. petioles)	Absent	Absent in typical form, present in northern populations	Absent
Size	To 10 × 2.2 cm	To 12 × 2 cm	To 8 × 1.5 cm
Petiole length	To 1.5 cm	To 1.5 cm	To 1.3 cm
FLORAL BUDS			
Pedicel length	To 0.6 cm	To 0.7 cm	To 0.5 cm
Size	To 0.5 × 0.4 cm	To 0.8 × 0.5 cm	To 0.6 × 0.4 cm
PEDUNCLE LENGTH	To 1.0 cm	To 1.0 cm	To 1.3 cm
FRUIT			
Pedicel length	To 0.4 cm	To 0.4 cm	To 0.3 cm
Size	0.4–0.5 × 0.3–0.4 cm	0.5–0.8 × 0.4–0.6 cm	0.4–0.6 × 0.4–0.6 cm
BARK	Box-bark to at least major branches	Box-bark to at least major branches	Smooth with basal box-bark
HABIT	Large mallees or small, spreading trees	Large mallees or small spreading trees	Small, often shrubby mallees

located at Wedderburn. Trial seedlings of this eucalypt have segregated and clearly indicate *E. polybractea* and *E. leucoxylon* F.Muell. ssp. *pruinosa* Boland as the parents.

Other collections from near Mt. Arapiles area held in MEL fit the general description of *E. odorata*. Previously, Rule (1990) diagnosed these as being a part of a hybrid swarm involving *E. wimmerensis* and a locally abundant form of Grey Box. Recent searches have located neither *E. odorata* nor *E. silvestris* in the area.

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